

LIST OF CURRENT CLAIMS

1. (Currently Amended) A 2-dimensional code formation method comprising:

a step of specifying a fixed code size for a 2-dimensional code regardless of an amount of storage information to be written in said 2-dimensional code;

a step of specifying storage information to be written in said 2-dimensional code;

a step of calculating cell size for a unit cell of said 2-dimensional code providing storage of said storage information in said 2-dimensional code having said specified code size;

a step of specifying the dot step size or number of dots $n \times m$ (where n and m are natural numbers) to be arranged vertically and horizontally inside said unit cell;

a step of creating laser-marking information for forming said 2-dimensional code having said specified code size, based on said code size, said storage information, said cell size and said dot step size or number of dots; and

a step of laser marking said 2-dimensional code having said specified code size, based on said laser-marking information.

2. (Previously Presented) The 2-dimensional code formation method of claim 1 wherein the cell size of said unit cell is changed according to change of said storage information.

3. (Previously Presented) The 2-dimensional code formation method of claim 1, further comprising:

specifying a number of said unit cells; and

wherein the cell size of said unit cell is calculated based on said specified code size and said specified number of said unit cells.

4. (Currently Amended) A 2-dimensional code formation method for forming a 2-dimensional code on a product including a single part or a plurality of parts, and comprising:

a manufacturing-history-information-acquisition step of acquiring manufacturing-history information for a said part;

a 2-dimensional-code-conversion step of converting data that includes an ID number for identifying manufacturing-history information or includes the manufacturing-history information itself for said part into a 2-dimensional code;

a parameter-setting step of setting [[the]] a fixed size of said converted 2-dimensional code according to said part regardless of an amount of information to be written in said 2-dimensional code;

a data size converting step of converting said 2-dimensional code formed in said 2-dimensional-code-conversion step into data for said 2-dimensional code having said fixed size set in said parameter-setting step; and

a laser-marking step of laser marking said 2-dimensional code having said fixed size set in said parameter-setting step directly on said part by a laser marker.

5. (Previously Presented) The 2-dimensional code formation method of claim 4 wherein, in said laser-marking step, said 2-dimensional code is formed based on the size of said 2-dimensional code, which was set in said parameter-setting step, by forming: unit cells in which dots that are formed by laser-beam irradiation are arranged vertically and horizontally $n \times m$ (where n and m are natural numbers); unit cells in which a rectangular shape is filled in by continuous laser-beam irradiation; or unit cells that are contained within a rectangular shape by continuous laser-beam irradiation.

6. (Original) The 2-dimensional code formation method of claim 4 wherein said laser-marking step includes a process of reading said 2-dimensional code that was laser marked and checking whether or not marking of said 2-dimensional code is correct.

7. (Currently Amended) A 2-dimensional code formation device comprising:

information-acquisition means for acquiring the code size of a 2-dimensional code, storage information that is to be written in said 2-dimensional code, and the step size or number of dots $n \times m$ (where n and m are natural numbers) that are arranged vertically and horizontally inside a unit cell of said 2-dimensional code;

calculation means for performing a process of calculating the cell size of said unit cell, based on said code size and said storage information acquired by said information-acquisition means, to provide storage of said storage information in said 2-dimensional code having said acquired code size and a process of creating laser-marking information for forming said 2-dimensional code having said acquired code size, based on said code size, said storage information, said cell size and said step size or number of dots; and

laser-marking means for performing laser marking of said 2-dimensional code having said acquired code size based on said laser-marking information;

wherein said acquired code size is fixed regardless of an amount of storage information to be written in said 2-dimensional code.

8. (Original) The 2-dimensional code formation device of claim 7 wherein said calculation means performs a process of changing the cell size of said unit cell based on change information for said storage information that was acquired by said information-acquisition means.

9. (Previously Presented) The 2-dimensional code formation device of claim 7 wherein said calculation means performs a process of creating different laser-marking information having different density based on change information for said step size or number of dots that was acquired by said information-acquisition means.

10. (Currently Amended) A 2-dimensional code formation device comprising:

information-acquisition means for acquiring the code size of a 2-dimensional code, storage information that is to be written in said 2-dimensional code, the number of unit cells of said 2-dimensional code, and the dot step size or number of dots $n \times m$ (where n and m are natural numbers) arranged vertically and horizontally inside a unit cell of said 2-dimensional code;

calculation means for performing a process of calculating the cell size based on said code size and said number of cells acquired by said information-acquisition means, and a process of creating laser-marking information for forming said 2-dimensional code having said acquired code size, based on said code size, said storage information, said cell size, and said dot step size or number of dots; and

laser-marking means for performing laser marking of said 2-dimensional code having said acquired code size based on said laser-marking information;

wherein said acquired code size is fixed regardless of an amount of storage information to be written in said 2-dimensional code.

11. (Previously Presented) The 2-dimensional code formation device of claim 10 wherein said calculation means performs a process of changing said cell size of unit cells based on change information for said number of cells that was acquired by said information-acquisition means.

12. (Previously Presented) The 2-dimensional code formation device of claim 10 wherein said calculation means performs a process of creating different laser-marking information having different density based on change information for said step size or number of dots that was acquired by said information-acquisition means.

13. (Currently Amended) A 2-dimensional code formation device that forms a 2-dimensional code on a product that is made from a single part or a plurality of parts, and comprising:

means for acquiring manufacturing-history information for said part/parts of a product;

means for storing the acquired manufacturing-history information;

means for converting data, which includes an ID number identifying said manufacturing-history information, or includes said manufacturing-history information itself, to said 2-dimensional code; and

means for converting said 2-dimensional code to data for said 2-dimensional code having a fixed size set according to said part/parts regardless of an amount of information to be written into said 2-dimensional code and for performing laser marking of said 2-dimensional code directly on said part/parts.